

Application No. 10/033,809  
Amendment Dated: March 21, 2005  
Reply to the Final Office Action of January 27, 2005

### **AMENDMENTS TO THE CLAIMS**

This listing of claims will replace all prior versions, and listings, of claims in the application:

#### **Listing of Claims:**

1 1. (Twice Amended) A computer-implemented method for bypassing I/O operations of a file  
2 system included in said computer, said computer having a computer program application that  
3 includes ordered computer code, said ordered code including I/O access commands, said file  
4 system that is optimized for processing queued said I/O access commands, and said computer  
5 system having application programming interfaces and a shell interface that enable bypassing  
6 said I/O operations, the method comprising:

7 ~~identifying said file system as a general purpose file system;~~

8 locating asynchronous direct said I/O access commands that are included in said

9 application ordered computer code; and

10 bypassing said ~~general-purpose~~ file system by executing said asynchronous direct I/O

11 access commands by use of said application programming interfaces and said

12 shell interface ~~a different file system.~~

1 2. (Original) The computer-implemented method of Claim 1, further comprising:

2 including an operating system in said computer; and

bypassing said queued I/O access commands when porting said application from said  
operating system to a different said operating system.

3. (Twice Amended) The computer-implemented method of Claim 1, further comprising  
bypassing said ~~general-purpose~~ file system by use of a performance file ~~that is included in said~~  
~~different file system.~~

4. (Twice Amended) A computer-implemented method for aggregating asynchronous direct I/O  
access commands, said computer having a computer program application that does application  
I/O caching and includes ordered computer code, said each ordered computer code having at  
least one said asynchronous direct I/O access command that operates with said application I/O  
caching, said computer supporting I/O request chaining, said computer having a file system that  
locates storage space for said computer code on said disk, said computer that executes said  
computer program application, the method comprising:

locating said at least one asynchronous direct I/O access command;

associating said at least one asynchronous direct I/O access command with at least one

~~general-purpose file in said file system;~~

associating said at least one ~~general-purpose~~ file with at least one performance file;

chaining said asynchronous direct I/O access command into at least one aggregated I/O

access command in said computer program application;

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14 associating said at least one aggregated I/O access command with said at least one  
15 performance file;  
16 identifying a terminus point ~~that is ordered~~ in said ordered computer code;  
17 issuing said at least one aggregated I/O command until said terminus point is reached;  
18 and  
19 when said terminus point is reached and if said at least one aggregated I/O command  
20 remains, issuing a final said at least one aggregated I/O access command.

1 5. (Original) The computer-implemented method of Claim 4, further comprising:  
2 including data in said at least one asynchronous direct I/O access command; and  
3 including said data in said at least one aggregated I/O access command.

1 6. (Previously Amended) The computer-implemented method of Claim 4, further comprising  
2 allocating said performance file in single extents.

1 7. (Previously Amended) The computer-implemented method of Claim 4, further comprising  
2 pre-formatting said performance file.

1 8. (Previously Amended) The computer-implemented method of Claim 4, further comprising  
2 allocating said performance file in a named performance file pool.

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1        9. (Previously Amended) The computer-implemented method of Claim 8, further comprising  
2        marking said performance file in said performance file pool as free.

1        10. (Previously Amended) The computer-implemented method of Claim 8, further comprising  
2        marking said performance file in said performance file pool as used.

1        11. (Previously Amended) The computer-implemented method of Claim 4, further comprising  
2        allocating said performance file in a default performance file pool.

1        12. (Previously Amended) The computer-implemented method of Claim 11, further comprising  
2        marking said performance file in said default performance file pool as free.

1        13. (Previously Amended) The computer-implemented method of Claim 11, further comprising  
2        marking said performance file in said default performance file pool as used.

1        14. (Previously Amended) The computer-implemented method of Claim 4, further comprising  
2        manipulating said performance file by a file pool utility.

1        15. (Original) The computer-implemented method of Claim 4, further comprising recovering

from errors occurring while executing said at least one aggregated I/O access command.

16.(Original) The computer-implemented method of Claim 4, further comprising locating said at least one asynchronous direct I/O access command in a loop in said ordered computer code.

17. (Twice Amended) A computer system for bypassing I/O operations of a file system included in said computer system, said computer system having a computer program application that includes ordered computer code, said ordered code including I/O access commands, said file system that is optimized for processing queued said I/O access commands, and said computer system having application programming interfaces and a shell interface that enable bypassing said I/O operations. comprising:

~~said file system as a general-purpose file system;~~

asynchronous direct said I/O access commands that are included in said application ordered computer code; and

said ~~general purpose~~ file system that is bypassed by executing said asynchronous direct I/O access commands by use of said application programming interfaces and said shell interface ~~a different file system.~~

18. (Original) The computer system of Claim 17, further comprising:

an operating system in said computer; and

3       said queued I/O access commands that are bypassed when porting said application from said  
4       operating system to a different said operating system.

1       19. (Twice Amended) The computer system of Claim 17, further comprising said ~~general~~  
2       ~~purpose~~ file system that is bypassed by use of a performance file ~~that is included in said different~~  
3       ~~file system.~~

1       20. (Twice Amended) A computer system for aggregating asynchronous direct I/O access  
2       commands, said computer having a computer program application that does application I/O  
3       caching and includes ordered computer code, said each ordered computer code having at least  
4       one said asynchronous direct I/O access command that operates with said application I/O  
5       caching, said computer supporting I/O request chaining, said computer having a file system that  
6       locates storage space for said computer code on said disk, said computer that executes said  
7       computer program application, comprising:

8       said at least one asynchronous direct I/O access command;

9       said at least one asynchronous direct I/O access command that is associated with at least one

10       ~~general purpose~~ file in said file system;

11       said at least one ~~general purpose~~ file that is associated with at least one performance file;

12       said asynchronous direct I/O access command that is chained into at least one aggregated I/O

13       access command in said computer program application;

14        said at least one aggregated I/O access command that is associated with said at least one  
15                performance file;  
16        a terminus point ~~that is ordered~~ in said ordered computer code;  
17        said at least one aggregated I/O command that is issued until said terminus point is reached;  
18                and  
19        when said terminus point is reached and if said at least one aggregated I/O command  
20                remains, a final said at least one aggregated I/O access command that is issued.

1        21. (Original) The computer system of Claim 20, further comprising:  
2                data that is included in said at least one asynchronous direct I/O access command; and  
3                said data that is included in said at least one aggregated I/O access command.

1        22. (Previously Amended) The computer system of Claim 20, further comprising said  
2        performance file that is allocated in single extents.

1        23. (Previously Amended) The computer system of Claim 20, further comprising said  
2        performance file that is a pre-formatted file.

1        24. (Previously Amended) The computer system of Claim 20, further comprising said  
2        performance file that is allocated in a named performance file pool.

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1     25. (Previously Amended) The computer system of Claim 24, further comprising said  
2     performance file that is marked in said named performance file pool as free.

1     26. (Previously Amended) The computer system of Claim 24, further comprising said  
2     performance file that is marked in said named performance file pool as used.

1     27. (Previously Amended)) The computer system of Claim 20, further comprising said  
2     performance file that is allocated in a default performance file pool.

1     28. (Previously Amended) The computer system of Claim 27, further comprising said -  
2     performance file that is marked in said default performance file pool as free.

1     29. (Previously Amended) The computer system of Claim 27, further comprising said  
2     performance file that is marked in said default performance file pool as used.

1     30.(Previously Amended) The computer system of Claim 20, further comprising said  
2     performance file that is manipulated by a file pool utility.

1     31. (Original) The computer system of Claim 20, further comprising said executing at least one



2 aggregated I/O access command that recovers from errors.

1 32.(Original) The computer system of Claim 20, further comprising said at least one  
2 asynchronous direct I/O access command that is located in a loop in said ordered computer code.

1 33. (Twice Amended) An article of manufacture comprising a program storage medium readable  
2 by a computer and embodying one or more instructions executable by said computer for  
3 bypassing I/O operations of a file system included in said computer, said computer having a  
4 computer program application that includes ordered computer code, said ordered code including  
5 I/O access commands, said file system that is optimized for processing queued said I/O access  
6 commands, and said computer system having application programming interfaces and a shell  
7 interface that enable bypassing said I/O operations, wherein:

8 ~~computer-readable program code identifies said file system as a general-purpose file~~  
9 ~~system;~~

10 computer-readable program code locates asynchronous direct said I/O access commands  
11 that are included in said application ordered computer code; and

12 computer-readable program code bypasses said ~~general-purpose~~ file system by executing  
13 said asynchronous direct I/O access commands by use of said application  
14 programming interfaces and said shell interface ~~a different file system.~~

1 34.(Original) The article of manufacture of Claim 33, wherein:

2 computer-readable program code includes an operating system in said computer; and

3 computer-readable program code bypasses said queued I/O access commands when

4 porting said application to a different said operating system.

1 35.(Twice Amended) The article of manufacture of Claim 34, wherein computer-readable

2 program code bypasses said ~~general purpose~~ file system by use of a performance file that is

3 ~~included in said different file system.~~

1 36. (Twice Amended) An article of manufacture comprising a program storage medium readable

2 by a computer and embodying one or more instructions executable by said computer for

3 aggregating asynchronous direct I/O access commands, said computer having a computer

4 program application that does application I/O caching and includes ordered computer code, said

5 each ordered computer code having at least one said asynchronous direct I/O access command

6 that operates with said application I/O caching, said computer supporting I/O request chaining,

7 said computer having a file system that locates storage space for said computer code on said disk,

8 said computer that executes said computer program application, wherein:

9 computer-readable program code locates said at least one asynchronous direct I/O access

10 command;

11 computer-readable program code associates said at least one asynchronous direct I/O  
12 access command with at least one ~~general-purpose~~ file in said file system;  
13 computer-readable program code associates said at least one general-purpose file with at  
14 least one performance file;  
15 computer-readable program code chains said asynchronous direct I/O access command  
16 into at least one aggregated I/O access command in said computer program  
17 application;  
18 computer-readable program code associates said at least one aggregated I/O access  
19 command with said at least one performance file;  
20 computer-readable program code identifies a terminus point ~~that is ordered~~ in said  
21 ordered computer code;  
22 computer-readable program code issues said at least one aggregated I/O command until  
23 said terminus point is reached; and  
24 when said terminus point is reached and if said at least one aggregated I/O command  
25 remains, computer-readable program code issues a final said at least one  
26 aggregated I/O access command.

1 37.(Original) The article of manufacture of Claim 36, wherein computer-readable program code  
2 locates said at least one asynchronous direct I/O access command in a loop in said ordered  
3 computer code.